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STATISTICAL BULLETIN
Metropolitan Life Insurance Co.

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THE NUMBER OF AUTOMOBILE FATALITIES VERSUS THE NUMBER OF AUTOMOBILES.

Eight months, or two-thirds of 1923 have passed and during this period the death toll in automobile accidents has been so great that little doubt now remains that the 1923 total will be higher than ever before. Year after year, this rising scale is being written into our mortality records. With the beginning of every year attention has been called to it and the hope expressed that the maximum had been reached. There is no doubt that automobile fatalities constitute the foremost public safety problem of today.

In view of what has happened, and what is still going on, it is difficult to accept with complacency any attempt to excuse or minimize this appalling condition. Yet this has been done, sometimes even in high places, and the reasoning employed is often grotesque. The mistake is to tell the public that the death rate from automobile accidents should be calculated, not on the number of persons in the country, but rather on the number of machines in operation; and that, when so calculated, the automobile death rate has not been and is not increasing, but has rather decreased. In this way, we are told, the situation is far from alarming.

The fallacy is obvious, and the idea which underlies it is not only dangerous to the community in general, but reacts unfavorably on the automobile industry itself and on the best interests of those using motor cars. For the interest of the community lies not so much in increasing the number of machines operated but in *safeguarding the lives of the people*. The vital fact is that year after year, the nation's loss is greater by reason of the increasing number of people maimed and killed by motor vehicles. The death rate per automobile is merely an interesting incidental.

It is against the public interest to belittle or excuse the conditions which obtain in this country with reference to automobile fatalities. It is unfortunate that any attempt in this direction should have been made. From the standpoint of *public safety*, the same reason exists for the stricter regulation of automobile traffic as obtains for the control of any condition that is dangerous to public welfare. If the country were confronted with a pandemic of smallpox, or of typhoid, or of malaria, public health officials would immediately concentrate on measures to counteract its spread. Vaccination would be insisted upon to the limit; or food and water supplies would be more closely scrutinized than ever; or drainage of swamps in malarious areas and mosquito extermination would become more than ever the order of the day. And public health officials would hardly take the ground that the situation did not demand more and more attention because of an increase in the number of opportunities for infection! So in relation to automobile accidents, we can find no comfort in the fact that there are more machines. A way must be found which will safeguard human life irrespective of whether more or less automobiles use the highways of the country.

THE LIFE-SPAN OF INSURED WAGE-EARNERS DURING 1922.

The slightly higher mortality rate of the year 1922 did not affect appreciably the expectation of life among insured wage-earners. In 1921, the expected after-life-span at birth was 55.08 years, that is to say, infants born in 1921 had a prospect of living that number of years if the mortality conditions prevailing during the year were to continue throughout life until the last of that cohort of children passed from observation. In 1922, the average after-lifetime was calculated to be 55.04 years, a figure inappreciably different from that which was observed in 1921. The effects of the influenza and pneumonia epidemic in the early part of 1922 were evidently offset by other and more favorable developments in health conditions during the rest of the year.

Compared with the expectation of life prevailing in 1911-1912 (46.63) the year 1922 shows a gain of 8.41 years; and, as compared with 1919-1920, a gain of 3.90 years. An increase of nearly eight and one-half years in the life-span within eleven or twelve calendar years is a remarkable achievement, perhaps unequalled in the records of any other population group in any similar period of time in public health history. The death rate among insured wage-earners has

been declining more rapidly than in general population groups, and consequently, the wage-earner's longevity has improved at a more rapid pace than for the whole population. There is no better index of the improved well-being of the industrial classes than these gains in the life-span.

The aggregate results for the whole of the Company's Industrial policyholders are simply a composite of what has happened among the several color and sex groups which make up the Industrial Department. Calculations of the average after-life-span are available for the color and sex groups at age ten. It was not practicable to extend the tables for these special groups to ages under that year. In the following table we show the recent course of the expectation of life in the several groups of insured lives:

Expectation of Life in Years at AGE TEN.
Industrial Policyholders of Metropolitan Life Insurance Company.
By Color and Sex. 1922 and Prior Years.

Color and Sex	1922	1921	1919–1920	1911–1912
Total Ind'l Dept.	52.36	52.73	49.85	47.43
White:				
Males	51.89	52.70	49.50	45.61
Females	54.46	54.61	52.05	50.66
Colored:				
Males	46.74	47.08	43.79	41.32
Females	46.07	46.12	43.76	41.30

It will be seen that no important changes in the average life-span occurred during 1922 in any of the color or sex groups. The gains in 1921 over the experience of the two years, 1919-1920 were held in 1922.

TREND OF THE CANCER MORTALITY RATE.

Has the death rate from cancer really increased? Is the disease now more of a menace than it was in former years and, if so, among which groups of the population? These and other questions are now under consideration in an analysis being made of the cancer mortality data for wage-earners insured in the Industrial Department of the Metropolitan Life Insurance Company for the period 1911 to 1922.

The published crude figures are hardly suitable for determining the real state of the facts. Corrections must be made for changes which have occurred in the composition of the insured group with respect to color, sex and age. When this was done for the data of insured wage-earners, it was found that the "standardized" death rate for cancer increased approximately six deaths per million policyholders per year over the period 1911 to 1922. Among females, for whom the cancer death rate is much higher than for males, the change was negligible. There was an increase of about two deaths per million per year for white females and a very small decrease of less than one death per million per year among colored females. The death rates for males showed a higher average increase than for females. Among white males, the increase was about eleven deaths per million per year and among colored males about twelve per million per year. In the following table we show the average annual increment or decrement for the several color and sex groups during the period 1911 to 1922:

Standardized Death Rate and Its Uniform Annual Increase* or Decrease*, Cancer—All Forms. By Color and Sex. Metropolitan Life Insurance Company. Industrial Department, 1911 to 1922.

Color and Sex	Uniform Annual Increase* of		Standardized Death Rate per 100,000	
	Crude Death Rate	Standardized Death Rate	1922	1911
Total Industrial Dept....	+.10	+ .58	80.3	74.2
White:				
Males.....	+.32	+1.05	80.5	69.8
Females.....	—.37†	+ .22	102.2	100.4
Colored:				
Males.....	+.98	+1.16	46.9	33.5
Females.....	+.62	— .05†	89.5	90.3

*In deaths *per year* per 100,000 exposed.
†Decrease.

It is true that cancer is the only one of the more important causes of death for which a steady, but slight, increase has been recorded year after year. But this fact cannot be accepted on its face as evidence that cancer has actually increased in recent years as a cause of death. There has been, undoubtedly, an increase in the

precision of statements of the causes of death upon death certificates; a larger proportion of deaths are certified on autopsy findings, or from data obtained by operation or in the microscopic examination of tissues, and there has been diminished reluctance on the part of families to have deaths certified from cancer. When these factors are taken into account the recorded changes in the cancer death rate give no indication of any heavier cancer toll now than formerly, when due allowance is also made for changes in the color, sex and age constitution of populations. The fact that the death rate has changed so very little among females, among whom the death rate from diagnosable, accessible cancers is heavy, seems to bear out this conclusion. But we must not lose sight of the fact that as yet no real progress has been made in bringing this most important condition under control.

Another point of interest in this preliminary statement is that the cancer death rate has shown very little variation in individual years from the line of general trend over the period 1911–1922. The average deviation during this period was but 2 per cent., and in no individual year did the departure from the line of trend exceed 4 per cent. In order to be significant of any fundamental change in cancer mortality, the departure from the normal or expected trend would have had to be in excess of 6 per cent.! This calculation shows that none of the death rates recorded in the past twelve years is indicative of any marked departure from the slight upward trend, which depicts changes in the diagnostic and record situation rather than in any of the circumstances which really affect cancer incidence. It should be remembered that only a beginning in the campaign against cancer has been made. Facilities for public instruction have only been tested. What will happen when these facilities are fully developed and continuously applied is still a matter of conjecture.

In the table on page 6, we show the course of cancer mortality in the whole Industrial Department of this Company during the period 1911 to 1922, with calculations of the standardized death rate and its trend values.

Mortality from Cancer—All Forms. 1911 to 1922.
Metropolitan Life Insurance Company. Industrial Department.

Year	Death rate per 100,000		
	Crude	Standardized Untrended Death Rate	Standardized Trended Death Rate
1922	72.0	80.3	81.7
1921	71.7	82.2	81.1
1920	69.8	82.0	80.6
1919	67.0	80.4	80.0
1918	67.2	77.9	79.4
1917	70.9	81.2	78.8
1916	70.3	77.0	78.3
1915	70.9	75.6	77.7
1914	69.8	75.2	77.1
1913	70.5	77.8	76.5
1912	70.3	78.7	76.0
1911	68.0	74.2	75.4
Uniform Annual Increment, 1911–1922	+.10	+.58	—

CERTAIN ASPECTS OF WHOOPING COUGH MORTALITY.

The relatively high mortality from whooping cough during 1923, to date, following as it does the lowest rate ever recorded, in 1922, brings into relief several interesting characteristics of this disease—more particularly, certain startling contrasts in its mortality incidence as compared with the three other epidemic diseases of childhood: measles, scarlet fever and diphtheria. Whooping cough is the only one of these four diseases which kills more girls than boys; which has a higher death rate among colored children than among white; and which causes more deaths among children in the rural districts than among those in the cities.

The high death rate among girls has long been recognized. The best opinion seems to be that there is a physiological reason for it. There is, between the two sexes, a distinct difference in the formation and development of the larynx. The male larynx is larger than in females, and it is entirely possible that boys are, congenitally, better equipped than girls to resist coughs of the convulsive and suffocative type. In this connection, it has been observed that the excess in the mortality of females over males is much more pronounced after

the first year of life than with infants. Professor S. J. Holmes, of the University of California, brought this out clearly by showing that in infancy, during a period of twenty years, deaths of girls from whooping cough exceeded those of boys by only 8.5 per cent., whereas they were 41 per cent. higher between ages 1 and 2 years; 44 per cent. higher between 2 and 3 years; 56 per cent. higher between 3 and 4 years; and 58 per cent. higher between 4 and 5 years. After age 10, very few deaths from whooping cough occur; but so far as we can judge on the basis of the few that do occur, the excess in the mortality among females is greater than during the first three years of life. The evidence seems fairly clear that the difference in the structure of the larynx of the two sexes is a factor in the higher mortality among females.

Figures covering a long period of years show that negroes are more liable to attack and that they suffer a much higher death rate from whooping cough than do whites. This is just the reverse of what happens for measles, scarlet fever and diphtheria. The relatively high mortality among colored children, also, has long been recognized, but unlike the higher death rate among girls, there does not seem to be any worthwhile explanation for this phenomenon. The reason may lie in the lower resistance of the colored race to bronchitis and bronchopneumonia, inasmuch as these are the most frequent complications of whooping cough in fatal cases. One authority suggests that the higher prevalence of certain diseases of the larynx—more particularly *laryngismus stridulus*—may be a factor.

That whooping cough mortality is higher in the rural districts than in the cities is less generally known than are the facts with reference to its relatively high death rate among girls and among colored children. Nevertheless, the records show this preponderance for a long period of years. Unfortunately, separate death rates for the rural and urban sections of the Registration States are not available since 1917, but up to that year the figures are conclusive. In 1917, the whooping cough death rate in the cities of the Registration States was 9.4 per 100,000, while that for the rural part of these states was 11.6. Similarly, in 1916 the urban rate was 9.7 and the rural figure, 11.4. For 1915 and 1914, the urban figures were 7.9 and 9.2 respectively, while those for the rural areas were 8.6 and 11.4. Again there is a direct contrast between whooping cough, on the one hand, and measles, scarlet fever and diphtheria.

It is difficult indeed to suggest what may be the reason for this

phenomenon. There is, of course, this important difference between the age distribution of deaths from whooping cough and from the other three diseases: whooping cough is the only one which has higher mortality during the first year of life than during any other year. If the birth rate were higher in the rural than in the urban districts, this might constitute a partial explanation. But so far as available figures show, the birth rate is not higher in the rural areas than in the cities.

It is not the purpose of this article to do more than point out these differences. There should be a more intensive study of these aspects of a disease which, during more than a twenty-year period, caused a considerable proportion of the mortality of children under five years, and especially of children under one year of age. This is all the more necessary when we consider that in the last ten years, the general tendency of whooping cough has not been downward.

HEALTH RECORD FOR JULY, 1923.

The July death rate shows the usual seasonal decline as compared with June; but it is a little higher, nevertheless, than any July rate since 1920. The diseases showing increases over July, 1922, are measles, whooping cough, cancer, organic heart disease, pneumonia, diarrheal diseases and puerperal conditions. Homicides increased somewhat, while accidental deaths rose 12 per cent. as compared with the same month last year. The accident rate for July (76.9 per 100,000) is the highest recorded for any month since July, 1921. Of the 905 deaths reported from accidental causes during July, 202, or 22.3 per cent. occurred in drowning accidents, while 178, or 19.7 per cent. were due to automobile accidents. Measured by the standards of years prior to 1921, the death rate for the month, however, was low, and the general health situation of the Industrial policyholders may be said, on the whole, to be satisfactory.

The death rate for the general population of the large cities of the United States in July was 10.6 per 1,000 estimated population. This is identical with last year's July figure. A decline is shown as compared with June, 1923. The diseases which showed increased morbidity over June were malaria, typhoid fever and whooping cough. Fewer cases of diphtheria, influenza, measles, scarlet fever and smallpox were reported. Comparison with July, 1922, shows a higher general prevalence of reportable diseases, the exceptions being diphtheria, scarlet fever and typhoid.

Since the advent of warm weather there has been a seasonal decline in this year's unusually high morbidity from measles. This applies especially to Michigan, Maryland, Kansas and Arkansas. In North Carolina 211 cases of smallpox were reported during the first three weeks of June as compared with 75 during a like period in July. The health commissioner of St. Louis issued a statement that trains from the South would be met by health officials and that wherever, in their judgment, there might be need for inspection and vaccination, passengers would be examined. Twelve cases of smallpox were reported among the colored population of Chattanooga, all of which were believed to have been imported from other cities. There was also a smallpox outbreak in Owosso, Mich.

Cases of typhoid fever have increased, especially in North Carolina and Georgia. In the former state, 243 cases were reported during the first three weeks of July as compared with 65 in the corresponding weeks of June. Typhoid outbreaks have been reported from Parsons, W. Va.; Karthaus, Pa. and University Place, Neb. In Wake County, N. C., the annual campaign against typhoid fever began July 2d. Forty vaccination dispensaries were designated in various parts of the county. A general increase in typhoid at this time of the year is the usual experience.

In states where malaria usually prevails, the tendency was decidedly upward in July. Notable instances are Arkansas, where the number of cases rose from 274 during the first three weeks of June to 410 for a like period in July. In Georgia, the corresponding figures were 47 and 114. Whooping cough increased slightly in most of the states.

During the first three weeks in July, two cases of Rocky Mountain fever were reported from Montana and three from Wyoming.

In California a reduction is reported in the budget for health work. This, it is said, will abolish the fund used in epidemic emergencies. The Illinois Department of Public Health has arranged an educational campaign which will cover county fairs to be held during the next three months. At Johns Hopkins Hospital, Baltimore, a special series of eight clinics was started to handle the large number of diabetics who apply for insulin treatment.

The table below shows the mortality among Industrial policyholders for July, 1923; June, 1923; July, 1922, and for the year 1922:

METROPOLITAN LIFE INSURANCE COMPANY.

Death Rates per 100,000 for Principal Causes, Premium-paying Business in Industrial Department.

(Annual Basis)

MONTHS OF JUNE AND JULY, 1923, AND OF JULY, 1922.

CAUSES OF DEATH	RATE PER 100,000 LIVES EXPOSED			
	July, 1923	June, 1923	July, 1922†	Year 1922†
TOTAL—ALL CAUSES	795.8	880.1	755.7	882.9
Typhoid fever	6.7	4.2	6.8	5.7
Measles	7.1	14.5	3.3	4.3
Scarlet fever	2.1	4.2	2.3	4.9
Whooping cough	4.8	4.1	2.1	2.6
Diphtheria	7.9	9.1	10.4	18.0
Influenza	4.5	11.9	3.9	21.7
Tuberculosis (all forms)	107.8	121.3	105.2	114.2
Tuberculosis of resp'y system	96.6	110.5	94.9	103.6
Cancer	69.0	71.0	64.0	72.0
Diabetes mellitus	11.6	15.2	*	17.2
Cerebral hemorrhage	51.0	56.1	48.9	62.9
Organic diseases of heart	113.0	126.5	99.8	126.7
Pneumonia (all forms)	33.3	55.3	29.3	73.7
Other respiratory diseases	9.8	12.5	10.7	13.7
Diarrhea and enteritis	17.6	10.1	14.0	10.8
Bright's disease (chronic nephritis)	59.7	71.5	59.8	70.3
Puerperal state	17.6	17.7	15.2	19.0
Suicides	7.1	8.8	7.0	7.5
Homicides	6.9	6.4	5.6	6.3
Other external causes (excluding suicides and homicides)	76.9	63.4	68.7	58.1
Traumatism by automobile	15.1	15.8	14.1	13.6
All other causes	181.4	196.1	198.8	173.3

*Not available.

†Provisional figures for 1922 given in preceding numbers of the *Bulletin* have been revised on the basis of final tabulations of data on the lives exposed to risk.

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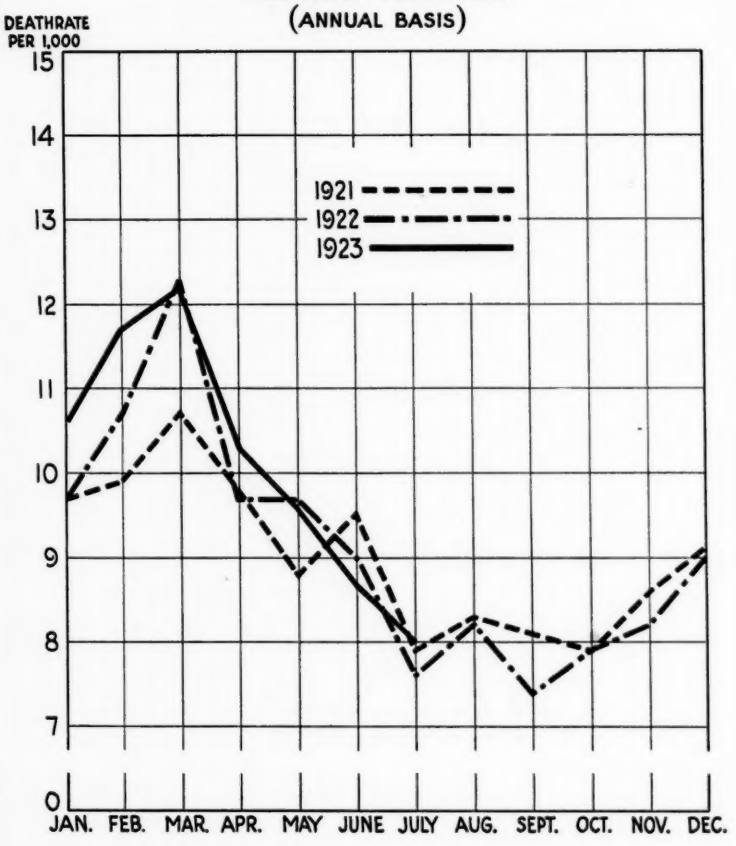
DEATHRATE PER 1,000
in SPECIFIED MONTHS *of*
1921-1922-1923

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT
(ANNUAL BASIS)



	1921	1922	1923
JAN.	9.7	9.7	10.6
FEB.	9.9	10.7	11.7
MAR.	10.7	12.3	12.2
APR.	9.8	9.7	10.3
MAY	8.8	9.7	9.6
JUNE	9.5	9.0	8.8

	1921	1922	1923
JULY	7.9	7.6	8.0
AUG.	8.3	8.2	
SEPT.	8.1	7.4	
OCT.	7.9	7.9	
NOV.	8.6	8.2	
DEC.	9.1	9.0	

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